

Notes on some Rare Scarabaeidae with the Description of One New Species. (Coleoptera).

By MARK ROBINSON, Sharon Hill, Pennsylvania.

For a long time it was apparent to me that some of our species of *Trox*, which were never found in the usual places where I had looked for them but where I found many other species, must be specialized, just like some of our *Aphodiini* and other *Scarabacidae*. With this in mind I set out this spring to prove or disprove this theory. I had several clues on which to work viz: material collected by Sim and Frost, plus several specimens from unidentified sources.

The method used was to scour the woods for birds building their nests in the early spring and, after the birds had raised their young, collect the nests and examine them bit by bit. The nests ranged from ten to seventy feet in the air and were in a great variety of trees including Beech, White Oak, Chestnut, Sycamore, Red Maple, Tulip Poplar, Norway Spruce and White Pine.

In the case of such birds as crows, titmice and other Passerines, the *Trox* are feeding on the feathers used to line the nest or the hairs which crows will intertwine through their nests; hawks' and owls' nests will always have scattered through them hair and feathers from the mammals and birds with which the Raptores had fed their young. In order for the *Trox* to be able to subsist in these nests, the nests must be very thick, or be in the cavity of a tree, in order to preserve the moisture which the larvae must have in order to mature.

The nest which proved to be the most productive was that of a barn owl at Broomall, Pennsylvania. This abode was located about twenty feet above the ground in the hollow of a dead Chestnut tree. I have collected *Trox* in these woods for the past eight years without ever taking any of the species that were collected in this nest. These consisted of over five hundred specimens of *striatus*, *aequalis*, *affinis* and the new species described in the following pages.

Thanks are due to the following men for their assistance in

locating nests or otherwise helping in the studies undertaken in this paper: Nelson D. Hoy, Robert M. Stabler, R. C. Casselberry, M. W. Sanderson, R. J. Sim, C. A. Frost and R. Swett.

Trox (Omorgus) tytus new species.

It is remarkable that an insect as large as this could have remained out of the hands of taxonomists and collectors as long as has been the case. Until I examined the material taken in the Broomall Owl nest I had never seen this species and yet I have seen most of the large collections of *Trox* in this country.

The nearest known species to this one is *suberosus* Fab., but *tytus* is smoother through-out, and the side margins of the pronotum are straight and not incised as they are in *suberosus*. In addition to the external characters, the male aedeagus has a very different shape. All the specimens in the type series were taken in barn owl (*Tyto alba pratinctola* Bonap.) nests.



Fig. 1. Dorsal view of aedeagus of *Trox tytus*.

Oblong; completely covered with a yellowish-brown granule-pollinose, opaque coating. Interspersed over the body are yellowish-brown scale like hairs, which are a little more concentrated on the elytral tubercles. The underparts of the head and anterior tips of the tibiae are reddish and shining.

Clypeus triangular, rather strongly reflexed laterally. On either side of the median line and just to the rear of the genae is an elongate, deeply excavated pit. Head rounded without trace of tubercles.

Pronotal sides arcuate, converging to the rounded hind angles in the posterior one-sixth, sinuation within the hind angle well pronounced. Hind margin rounded medially, sinuate on each side. On the disk of the pronotum is an ill-defined median groove which runs posteriorly into a deeply, transversely excavated pit; the sides of this pit are sloping. The usual tubercles of this subgenus are but vaguely indicated on the pronotum.

The elytral tubercles are low, barely rising above the plane of the intervals. The tubercles on the first and sutural rows are elongate and sometimes longitudinally confluent, the tubercles on the lateral rows are oval to rounded. The intervals are biserially punctured. Humeral umbone moderately prominent while the apical umbone is indefinite.

Scape of antennae reddish, bristling with long ochraceous-orange hairs; funicle fulvous, glabrous; club testaceous. Apical process of anterior tibiae bifid, side margin of tibiae with a sharp denticle just back of the anterior process.

Wings: Length, 18 mm.; Breadth, 6.25 mm. Length, 12 to 13 mm.; Breadth, 7 to 8 mm.

Type.—♂ Broomall, Delaware County, PENNSYLVANIA, June 14, 1941 (Mark Robinson). *Allotype*.—♀, With same data as type.

Paratypes.—190 of both sexes; 162 Broomall, Pennsylvania, from May 29, 1941 to June 20, 1941 (Mark Robinson); 4 Broomall, Pennsylvania, June 1, 1941 (R. Stabler); 24 Lyndell, Pennsylvania, June 18, 1941 (Mark Robinson). Paratypes will be deposited in the collections of: Academy of Natural Sciences of Philadelphia; American Museum of Natural History; Museum of Comparative Zoology; United States National Museum; University of Kansas; O. L. Cartwright; M. A. Cazier; R. C. Casselberry and the writer.

Trox SIMI Robinson, 1940. Trans. Amer. Ent. Soc. LXVI, p. 157.

The type series of this species consisted of fifteen specimens found in New Jersey, Pennsylvania and Virginia. The food records I had at the time of description were: Hen feathers, mouse hair, dead crow, dead mole, old carpet and owl pellets. This year I have found ninety-two specimens in Broomall, Darby and Sharon Hill, Delaware County, Pennsylvania, from

April 28 to June 19. All specimens were found feeding on Barn Owl (*Tyto alba pratinicola* Bonap.) pellets which were disgorged on the ground beneath the trees in which the owls roosted.

Trox aequalis Say. 1832. Say, New Harmony, p. 5.

This species seems to be found in a great variety of mammal and bird nests, as prior to 1941 I had only collected one specimen; this was on an old felt hat on the ground at Broomall, Pennsylvania, June 12, 1934. This year I collected between two and three hundred specimens in the nests of crows (*Corvus brachyrhynchos* Brehm), screech owl (*Otus asio naxvius* Gmelin), great horned owl (*Bubo virginianus* Gmelin), barn owl (*Tyto alba pratinicola* Bonaparte), tufted titmouse (*Baeolophus bicolor* Linnaeus), hawk (*Buteo* sp.) and gray squirrel (*Sciurus carolinensis* Gmelin). All specimens were collected in Chester or Delaware Counties, Pennsylvania, between May 11 and June 15, 1941. In addition I have seen specimens collected in the nests of turkey vulture (*Cathartes aura septentrionalis* Wied) and the starling (*Sturnus vulgaris* Linnaeus). *Trox affinis* Robinson. 1940. Trans. Amer. Ent. Soc. LXVI, p. 158.

At the time I wrote the original description of this form I thought it was a subspecies of *Trox aequalis* Lec. Since then I have examined specimens from New York, Pennsylvania, Maryland, Virginia, Iowa, Kansas and California. While I haven't found any more characters to separate the two species I think the larger size, different male genitalia and lack of intermediate specimens are sufficient to rank it as a separate species.

In addition to the type series of fifty-nine specimens collected in various localities in New Jersey, which were all collected in crows' nests, I have collected twenty-four specimens in four different crows' nests this spring and Dr. Robert M. Stabler collected two specimens in Chester County on May 18, 1941, in a crow's nest. In the great horned owl nest which I examined on June 18, 1941, I collected fifty-two specimens of

this species. I believe the reason for the large number of specimens being found in this Owl's nest is that the owl had used a last years crow's nest as the basis for its own nest and the *Trox*, when they matured this year, started to feed on the hair of rabbits and feathers of pheasants and grouse, which remains were found in the nest.

Trox striatus Melsheimer. 1846. Proc. Acad. Nat. Sci. Phila. II, p. 137.

This species has always been rare in collections and was one of the species I endeavored to trace to a definite host. In the barn owl's nest at Broomall, I took several hundred specimens of *striatus* along with the other *Trox* and *Hister* collected there. In addition I collected it in the nest of a barn owl at Lyndell, Pennsylvania, on June 18, 1941, a great horned owl's nest at Cupola, Pennsylvania, on the same date, and screech owl's nest at Chester Heights, Pennsylvania, also yielded several specimens on June 15, 1941.

Conjointly with the above biological data is the record of Sim's that he collected several specimens in May and June, 1930 at Moorestown, New Jersey, in the nest of a barn owl. All of these records add up to but one conclusion, that *Trox striatus* is found in the nests or nesting cavities of our species of owls.

Trox laticollis Leconte. 1854. Proc. Acad. Nat. Sci. Phila. VII, p. 213.

This species was always very rare in collections until Mr. C. A. Frost collected over twenty-five specimens in May, 1939, in a fox den at Natick, Massachusetts. Since then Dr. Milton W. Sanderson sent me four specimens which he found feeding on a dead fox in a cave in Washington County, Arkansas, on November 12, 1938. On July 1, 1941, I took one specimen in the den of a gray fox (*Urocyon cinereoargenteus* Schreber) at the Springton Dam in Delaware County, Pennsylvania.

Aphodius manitobensis Brown. 1928. Can. Ent. LX, p. 302.

Mr. Robert Swett presented to me a male specimen of this

species which he collected at Canadensis, Pennsylvania, in March, 1939, in the ground under a pile of white-tailed deer (*Odocoileus virginianus* Boddaert) excrement. At the time that the specimen was collected there was frost in the ground and patches of snow here and there on the surface.

Mr. W. J. Brown, who described the species and compared this specimen with the type stated that this was only the second specimen he had seen.

APHODIUS OBLONGUS Say. 1823. Journ. Acad. Nat. Sci. Phila. III, p. 215.

Four specimens of this rare species were taken by myself at Broomall, Pennsylvania, in two gray squirrel (*Sciurus carolinensis* Gmelin) nests on June 14, 1941. Both nests were in cavities of dead chestnut trees about thirty feet above the ground. They were composed of piles of leaves which were chewed into small pieces. Whether the *Aphodius* were feeding on the decomposing leaves or the squirrel excrement scattered through the nest I was unable to determine.

PHYLLOPHAGA POSTREMA Horn. 1887. Horn, Tran. Amer. Ent. Soc. XIV, p. 233.

This rather rare Melolonthid was taken by myself for the first time in New Jersey at White's Bogs on June 24, 1939. Six specimens were found feeding at night on tupelo (*Nyssa sylvatica* Marsh.), sweet fern (*Myrica asplenifolia* L.) and blueberry (*Vaccinium virgatum* Ait.).

Tabanidae of Panama (Diptera).

The annual report of the Gorgas Memorial Laboratory, located in Panama City and in three field stations, for 1940, states that Mr. G. B. Fairchild, Junior Entomologist continued work on the Tabanidae of Panama. "A considerable number of species were added to the collections and three papers on the group were prepared. Two additional species were reared from larvae. In February, the services of a reliable native were secured which enabled collections to be made at one spot every two weeks. When a year's collection has been gathered, it will enable us to gain a very fair idea of the seasonal abundance of the various species."